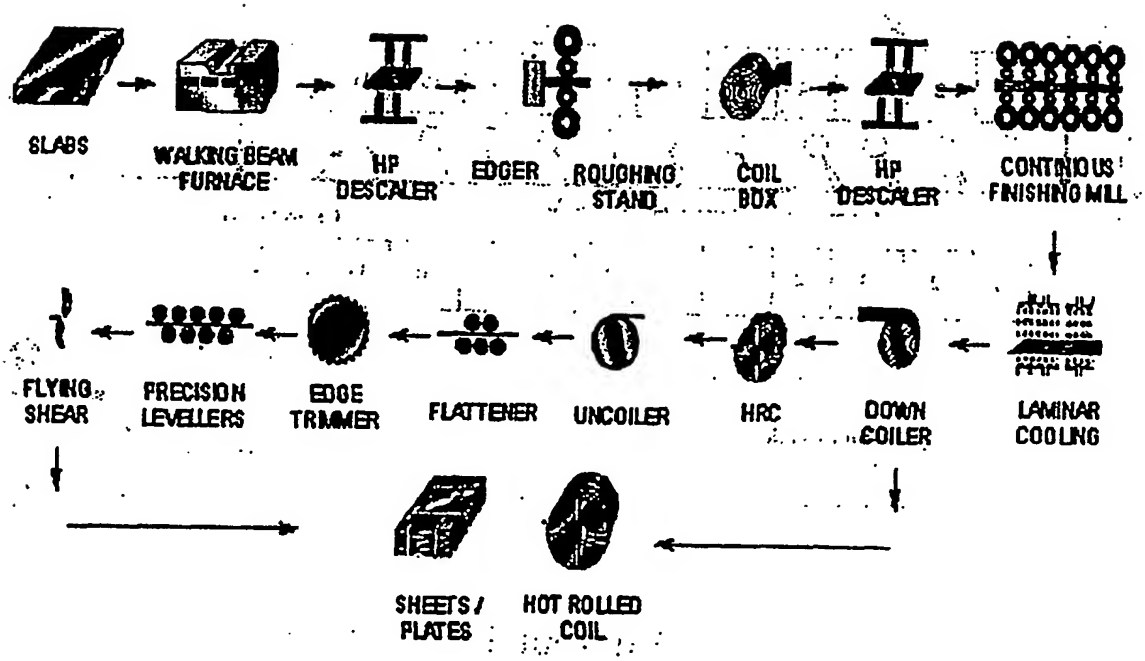

SLABS
WALKING BEAM FURNACE
HP DESCALER
EDGER
ROUGHING STAND
COIL BOX
HP DESCALER
CONTINUOUS FINISHING MILL
LAMINAR COOLING
DOWN COILER
HRC
UNCOILER
FLATTENER
EDGE TRIMMER
PRECISION LEVELLERS
FLYING SHEAR
SHEETS / PLATES
HOT ROLLED COIL

Fig. 1

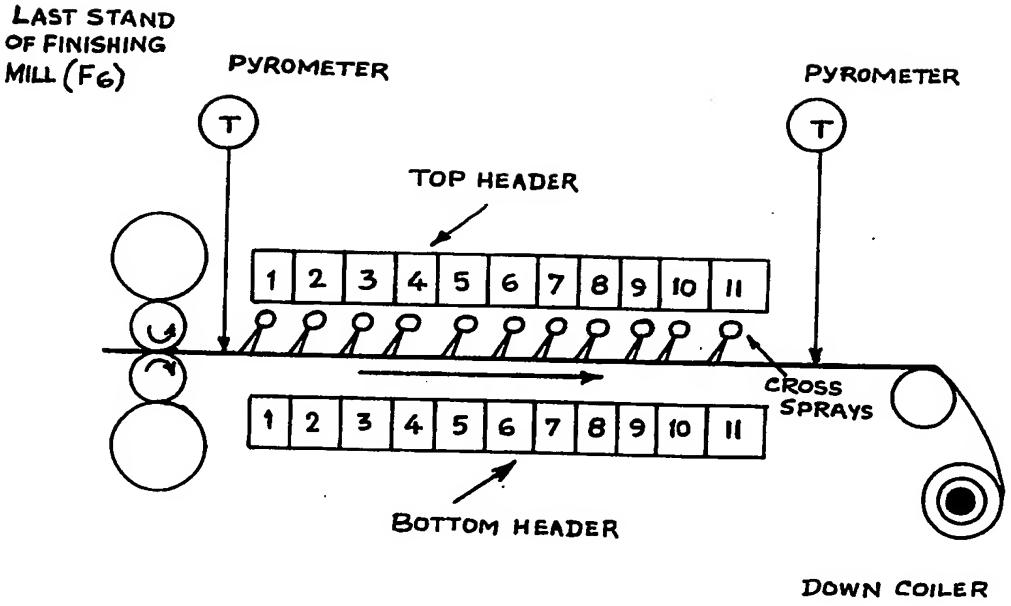

LAST STAND OF FINISHING MILL (F6)
PYROMETER
PYROMETER
T
T
TOP HEADER
1 2 3 4 5 6 7 8 9 10 11
CROSS SPRAYS
1 2 3 4 5 6 7 8 9 10 11
BOTTOM HEADER
DOWN COILER

Fig. 2

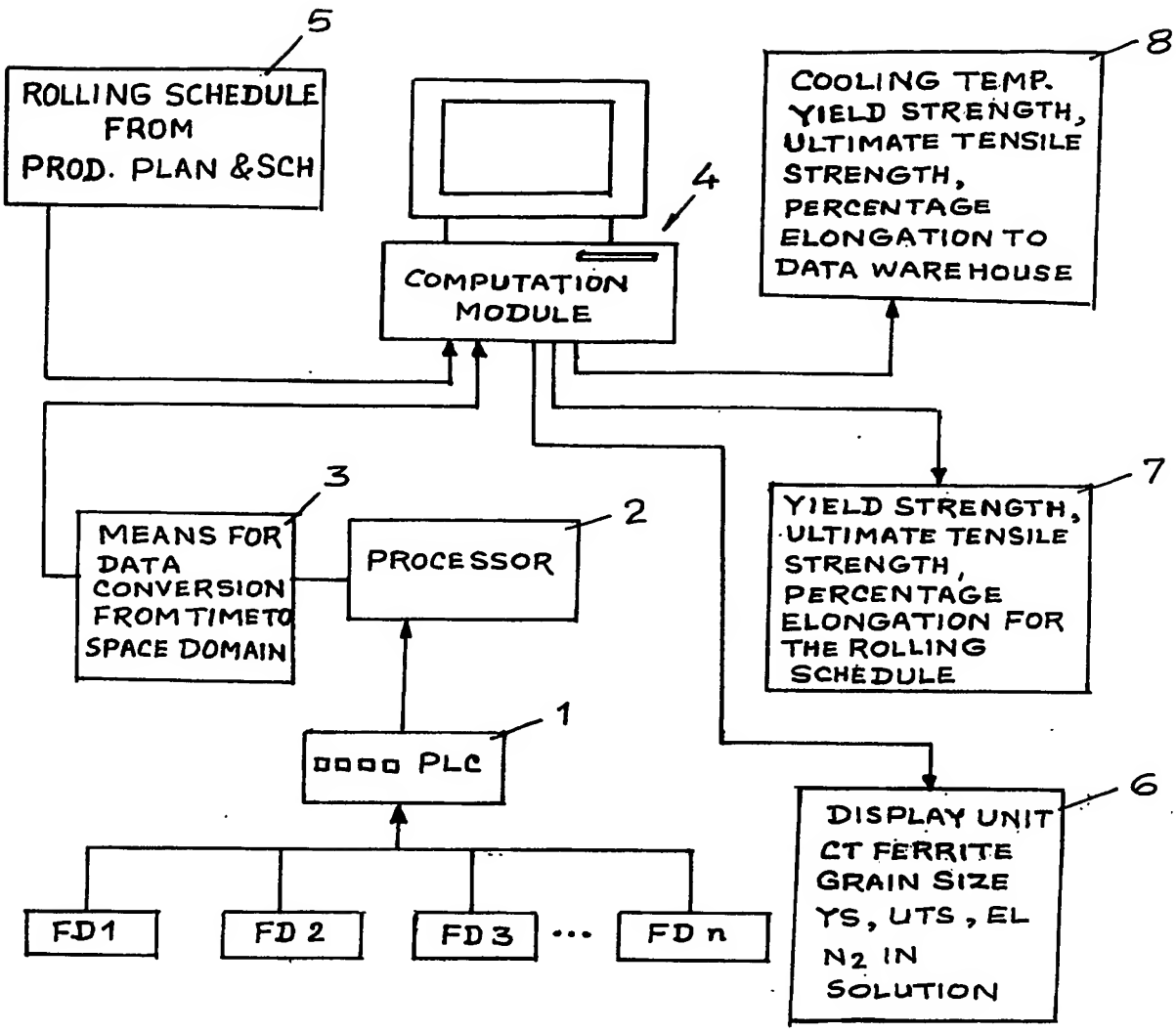

5
ROLLING SCHEDULE FROM PROD. PLAN &SCH
4
COMPUTATION MODULE
8
COOLING TEMP. YIELD STRENGTH, ULTIMATE TENSILE STRENGTH, PERCENTAGE ELONGATION TO DATA WAREHOUSE
3
MEANS FOR DATA CONVERSION FROM TIME TO SPACE DOMAIN
2
PROCESSOR
7
YIELD STRENGTH, ULTIMATE TENSILE STRENGTH, PERCENTAGE ELONGATION FOR THE ROLLING SCHEDULE
1
PLC
6
DISPLAY UNIT CT FERRITE GRAIN SIZE YS, UTS, EL N_2 IN SOLUTION
FD1
FD 2
FD 3
FD n

Fig. 3

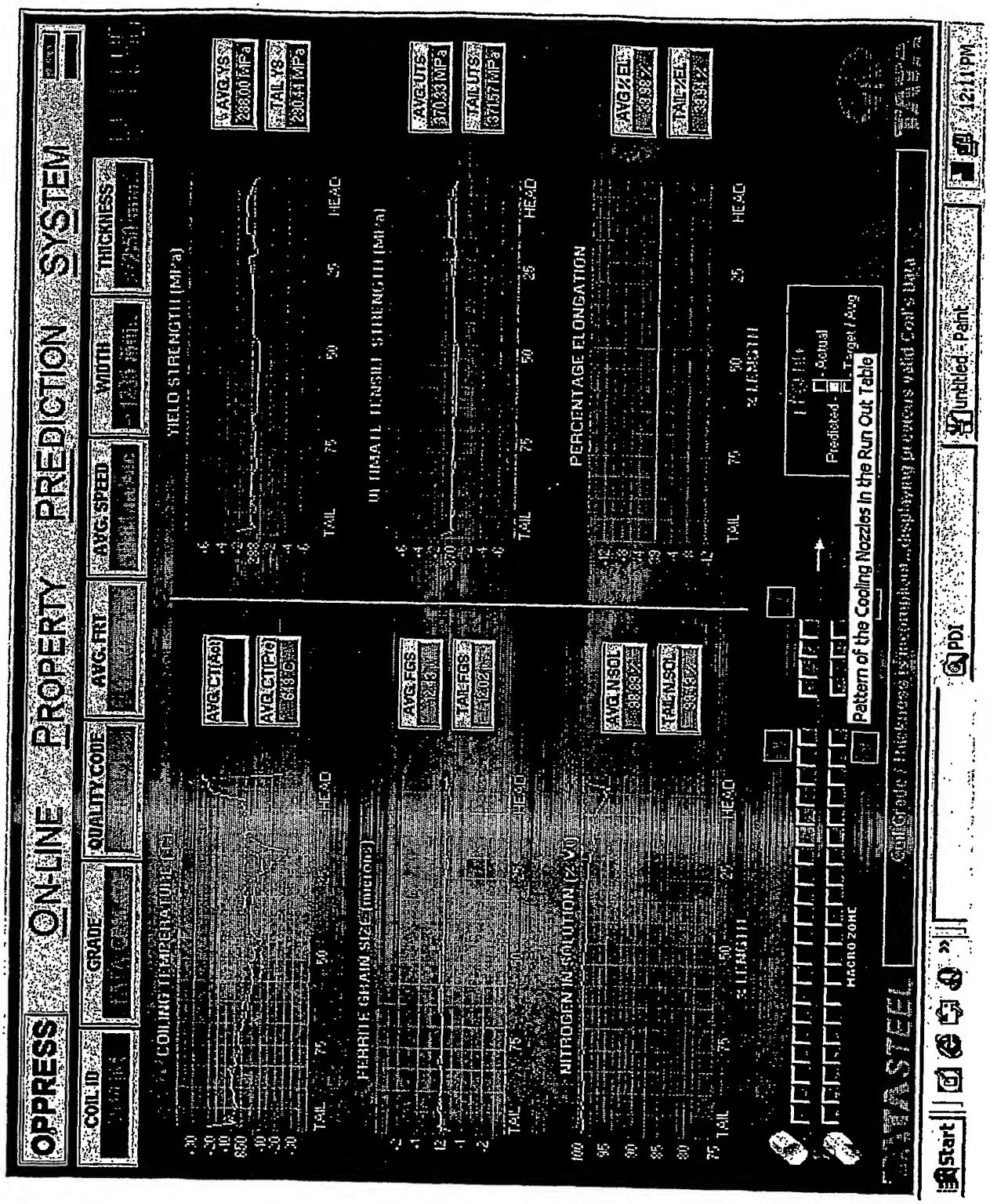

ON-LINE PROPERTY PREDICTION SYSTEM
COIL ID
GRADE
QUALITY CODE
AVG. FM
AVG. SPEED
WIDTH
THICKNESS
COILING TEMPERATURE (°C)
AVG.CT(°C)
AVG.CT(°C)
PERLITE GRAIN SIZE (microns)
AVG.FGS
TAIL FGS
NITROGEN IN SOLUTION (ppm)
AVG.NSOL
TAIL NSOL
YIELD STRENGTH (MPa)
AVG.YS
TAIL YS
ULTIMATE TENSILE STRENGTH (MPa)
AVG UTS
TAIL UTS
PERCENTAGE ELONGATION
AVG %EL
TAIL %EL
TAIL
HEAD
Pattern of the Cooling Nozzles in the Run Out Table
Predicted
Actual
Target / Avg
MACRO ZONE
Start
PDI
Untitled - Paint
12:11 PM

Fig. 4

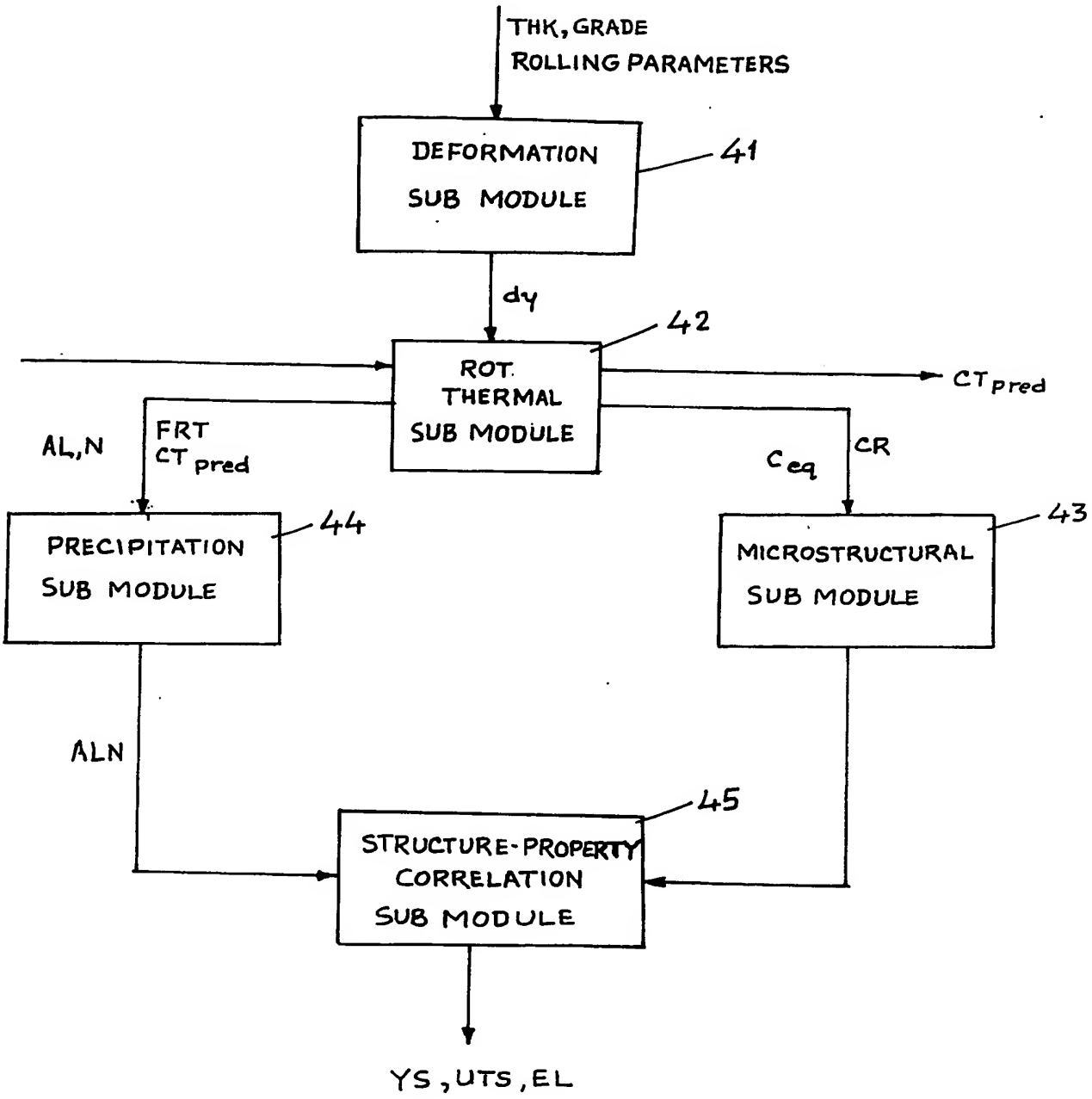
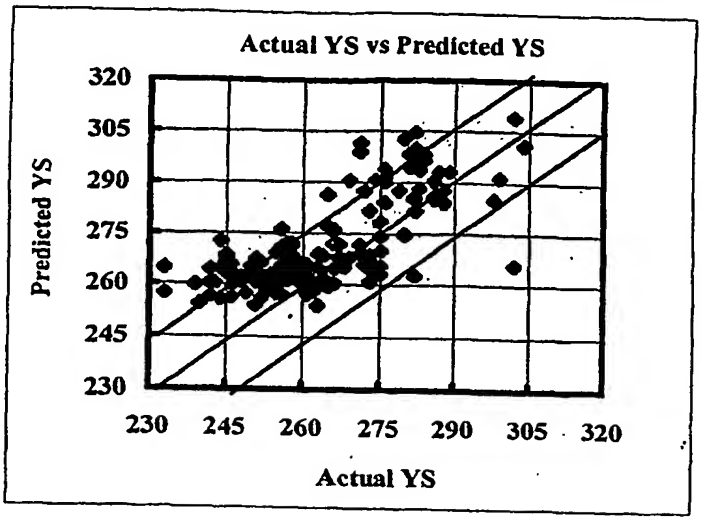

THK, GRADE
ROLLING PARAMETERS
DEFORMATION
SUB MODULE
41
dy
42
ROT.
THERMAL
SUB MODULE
CT pred
AL,N
FRT
CT pred
Ceq
CR
PRECIPITATION
SUB MODULE
44
MICROSTRUCTURAL
SUB MODULE
43
ALN
45
STRUCTURE-PROPERTY
CORRELATION
SUB MODULE
YS, UTS, EL

Fig. 5

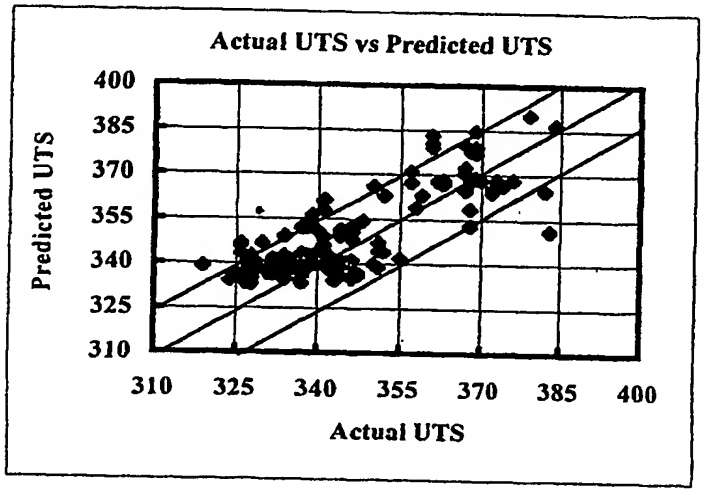
Data Compare Between 09/10/2003 And 12/10/2003



YS Accuracy
+/- 15 Mpa

YS Reliability
75%

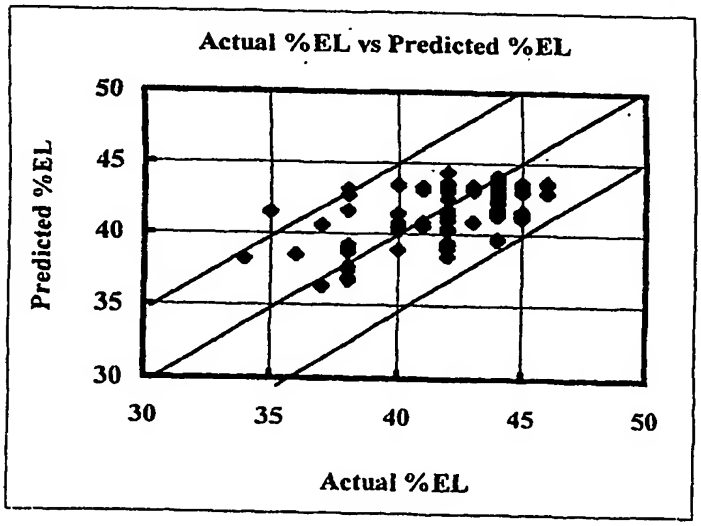
Total Points 152
Outside Points 38
Inside Points 114



UTS Accuracy
+/- 15 Mpa

UTS Reliability
87%

Total Points 152
Outside Points 20
Inside Points 132



%EL Accuracy
+/- 5 %

%EL Reliability
98%

Total Points 152
Outside Points 3
Inside Points 149

Fig. 6